

be made thin in diameter, it can be used extremely effectively in optical fiber cables that realize high densities and multiple core wiring in a limited space, such as in optical wiring modules, etc. within a telephone office.

WHAT IS CLAIMED IS:

1. A polyethylene spacer for optical fiber cable, with which a thermoplastic resin, with compatibility with polyethylene, is applied as an intermediate coating layer onto the periphery of a central tensile member and with which a main coating, having continuous spiral grooves that are for accommodating optical fibers and are inverted periodically in direction along the length direction, is formed from polyethylene resin on the outer periphery of said intermediate coating layer,

said spacer for optical fiber cable being characterized in that the minimum rib thickness of the ribs that define said spiral grooves is 1.0mm or less and the groove inclination angle of the spacer cross section at the inversion parts is 18° or less.

2. A polyethylene spacer for optical fiber cable, with which a main coating, having continuous spiral grooves that are for accommodating optical fibers and are inverted periodically in direction along the length direction, is formed from

polyethylene resin on the outer periphery of a central tensile member,

said spacer for optical fiber cable being characterized in that the minimum rib thickness of the ribs that define said spiral grooves is 1.0mm or less and the groove inclination angle of the spacer cross section at the inversion parts is 18° or less.

3. A spacer as set forth in claim 1 or 2, wherein the resin density of the portions substantially at the roots of the ribs that define said spiral grooves is the lowest in comparison to the tip parts of the ribs and the central parts of the ribs.

4. A spacer as set forth in any of claims 1 through 3, wherein the average roughness of the groove bottoms of said spiral grooves is 1.2μm or less.

5. A spacer as set forth in any of claims 1 through 3, wherein the spiral progression angle ( $\beta$ ), as determined by :

$$\tan \beta = (d \times \pi \times \theta / 360) / p$$

where d is the outer diameter,  $\theta$  is the spiral groove inversion angle, and p is the spiral groove inversion pitch, is set in the range, 5 to 15°.

6. An optical fiber cable characterized in using a spacer as set forth in any of claims 1 through 5 to house a plurality of tape-form optical fibers in at least one or more spiral

grooves.

7. An optical fiber cable characterized in using a spacer as set forth in any of claims 1 through 5 to house a single-core optical fiber in at least one or more spiral grooves.

8. A method for producing a spacer for optical fiber cable, with which a thermoplastic resin, with compatibility with polyethylene, is applied as an intermediate coating layer onto the periphery of a central tensile member and with which a polyethylene main spacer coating, having continuous spiral grooves that are for accommodating optical fibers and are inverted periodically in direction along the length direction, is formed on the outer periphery of said intermediate coating layer,

said method for producing a spacer for optical fiber cable being characterized in that after said main spacer coating spacer is applied, a cooling medium is blown, obliquely at a predetermined angle with respect to the running direction of said spacer, onto the outer periphery of said spacer.

9. A method for producing a spacer for optical fiber cable, with which a polyethylene main spacer coating, having continuous spiral grooves that are for accommodating optical fibers and are inverted periodically in direction along the length direction, is formed on the outer periphery of a central tensile

member,

said method for producing a spacer for optical fiber cable being characterized in that after said main spacer coating spacer is applied, a cooling medium is blown, obliquely at a predetermined angle with respect to the running direction of said spacer, onto the outer periphery of said spacer.

10. A method for producing a spacer for optical fiber cable, with which a polyethylene main spacer coating, having continuous spiral grooves that are for accommodating optical fibers and are inverted periodically in direction along the length direction, is formed around the outer periphery of a central tensile member,

said production method being characterized in that a reinforced fiber bundle, which comprises said tensile member, is drawn upon being impregnated with an uncured thermosetting resin, then upon inserting this reinforced fiber bundle into a melt extrusion molding die, a polyethylene resin is extruded and coated onto the outer periphery, then after cooling the coated resin on the surface, the thermosetting resin in the interior is cured, and

after applying said main spacer coating onto the outer periphery of said coating resin, a cooling medium is blown, obliquely at a predetermined angle with respect to the running

09753359.00504

direction of said spacer, onto the outer periphery of said spacer.

11. A method for producing a spacer for optical fiber cable as set forth in any of claims 8 through 10, wherein the cooling medium is warm water of 40° C or more having a surfactant added thereto.

12. A method for producing a spacer for optical fiber cable as set forth in any of claims 8 through 10, wherein the cooling medium is dry air or moist air, including mist.

13. A method for producing a spacer for optical fiber cable as set forth in any of claims 9 through 11, wherein said predetermined angle is set to an angle of within 30° to 150°.

14. A method for producing a spacer for optical fiber cable as set forth in any of claims 8 through 13, wherein the drawdown is set to 70% or more.

15. A method for producing an optical fiber cable characterized in that after the cooling and solidifying of said main spacer coating by the blowing on of an abovementioned cooling medium in the method for producing a spacer for optical fiber cable as set forth in claim 9, optical fibers are housed in said spiral grooves and a sheath coating is provided by press winding a non-woven fabric around the outer periphery to produce an optical fiber cable.